

ABSTRACT OF THE DISCLOSURE

A radiation detector has a plurality of semiconductor cells arranged in a matrix. Each of the plurality of semiconductor cells detects radiation separately, and outputs a signal representing the energy of radiation separately. A selection circuit selects, among events wherein radiation is detected, specific events wherein radiation derived from radio-isotope injected to a subject is detected. In the first case wherein either one semiconductor cell outputs a signal, the energy of the signal is compared with a predetermined energy window. In the second case wherein two or more semiconductor cells output two or more signals substantially simultaneously, the total energy of the two or more signals is compared with the predetermined energy window. A position calculation circuit calculates, in the first case, the incidence position of the radiation on the basis of the position of the semiconductor cell that outputs a signal, and in the second case, the incidence position of radiation on the basis of the position of either one of the two or more semiconductor cells. A counting circuit counts the specific events in association with the calculated incidence position. The distribution of radio-isotope in the subject is obtained on the basis of this counting result.